

# The Energy Universe

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Brigham Young University Provo, Utah Vol. 35 No. 63 Monday, December 7, 1981

## Energy research

# Coal gas may replace natural gas, oil

By NORMA RUSSELL

Staff Writer  
United States now imports 40 percent of its oil from foreign countries and has become dependent on foreign oil for its supply. Coal gasification could be an intermediate solution to the energy crisis, said Phil Smith, assistant professor of chemical engineering at BYU.  
"One of the research goals of the department is to make a coal-generated gas to use instead of natural gas," he said.  
Smith, who is in charge of the chemical and theoretical work in gasification, said the use of coal gasification would be easier and less expensive than oil.  
There are three areas being explored in the use of coal in the world according to Michael King, a chemical engineering assistant to the dean of engineering, who is in charge of the chemical and theoretical work in gasification.  
One area being explored is the use of coal in the production of synthetic fuel research.  
Another area being explored is the use of coal in the production of gasification products such as gasoline and diesel fuel from coal.  
Minimize pollution  
A principal interest is in coal gasification and finding ways to burn cleanly and thereby minimize pollution," King said.  
In the process of gasification, part of the coal is burned. It does heat, which is then used to produce the gas. These gases may be used in a variety of ways.  
In an example of this, King cited the use of a big industrial plant that uses coal to heat the plant or to produce power.  
If the industrial plant had coal gas available but had coal

nearby, it could pipe the coal gas off with a gasifier, a unit which converts the coal into a gas product. Then the company could use the gas to whatever heating unit it happened to be running," he said.

King also said this same synthetic natural gas could be used in home furnaces by running it through pipes into people's homes.

"This would be exactly the same chemical that homes receive now for gas furnaces," he said. "They wouldn't need to change their furnaces, but coal gas would be more expensive—at least today."

### Coal expensive

One reason coal has not been used extensively is that petroleum and natural gas are less expensive, easier to process and cheaper to use.

With increased prices of petroleum and gas, the time is not too distant when those resources are not going to be so available.

"We'll see coal utilized a lot when those resources either become priced out of the market or become physically unavailable," he said.

### Energy shortage

David Sloan, a student from Grants, N.M., working on his doctorate in chemical engineering, said it is incorrect to say there is an energy shortage for all kinds of fuels.

"However, in the opinion of many experts, there is a distribution problem with liquid fuels," he said.

But, according to King, experts have projected that the United States' coal supply, if used as the country's only available energy resource, would last for 200 years. If this is true, coal reserves could replace other dwindling energy re-

sources.

However, I don't see this happening soon because I anticipate the development of additional petroleum and natural gas reserves in the near future," he said. "Coal is expensive so right now we will keep using natural gas, but in 20 to 30 years we will be using coal commercially on a large scale."

According to King, students involved in coal research are coming up with ideas that will help our nation to design more efficient pollution-free energy systems.

"Our students are involved with research where they're finding answers to questions that will be effective maybe three, five or 10 years from now," he said.

King said students try to understand various processes that go on in coal-related energy. Once they get answers they share their knowledge with people who can utilize this information to design necessary materials and facilities.

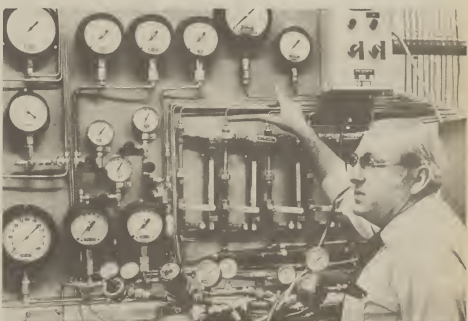
### Coal economical

Tom Fletcher, a student from Provo working on his doctorate in chemical engineering, said coal processes are becoming more economically feasible.

"Our biggest problem is the pollution that comes from coal-fired furnaces. We're trying to learn how to control some of the processes that come from coal-fired furnaces and reduce pollutants," he said.

Fletcher said he and other students use computers to evaluate mathematical equations to try and determine what happens in a coal-fired reactor.

"If we can describe the process inside a reactor using numbers, then we can help design a better reactor with-



Michael King, a research assistant to the dean of chemical engineering, takes readings from the coal gasification system in the Clyde Building. King says that we may be using coal more extensively as an alternative to petroleum and natural gas in the not-too-distant future.



University photo by Linda Jo Stevens  
Bruno Szalkowski, glassblower for BYU, blows an intricate scientific apparatus, right. Szalkowski, who has been blowing glass for 25 years, fires a glass piece, upper left. For a change of pace, he sculpts a delicate glass swan, lower left. This, he says, "keeps me from beating my head."

## Rare glassblowing art lives on at Y; blower creates art, scientific tools

By DEBBIE HERMAN  
Staff Writer

Glassblowing has become a vanishing art in today's world of commercial manufacturing. There are only 800 members of the professional glassblowers society and not a school in the United States can train new glassblowers.

BYU is fortunate to have a professional glassblower, Bruno Szalkowski, a member of the National Society of Scientific Glassblowers, at work exclusively on campus.

Many departments  
Kelly Jensen, assistant manager of chemical stores, says that Szalkowski has done work for cancer research, chemical engineering, physics, food science and even the art department.

Szalkowski says that glassblowing is important because a researcher can have a glass apparatus created to fit the specific needs of a research project.

The researcher comes to Szalkowski and draws a sketch of what is needed for his particular project. Szalkowski then depicts the drawing and begins to create an apparatus to help the researcher.

Szalkowski says he enjoys BYU and there is a lot of research to keep him busy.

### Enthusiastic

After he receives a sketch, he puts together a sequence showing size and complications for the apparatus. He says this mathematical deliberation is challenging and always keeps him enthusiastic about his work.

For example, someone from the cancer research will come to Szalkowski and request a specific apparatus. Szalkowski will then devise a glass apparatus that will facilitate that particular researcher's needs. Then he and the researcher will review the created glass project for proper efficiency. Cancer research is one area that requires many glass apparatuses made according to the researcher's needs.

### Creative sculpture

Szalkowski also does creative sculpture work. In three minutes he can create a tiny glass elephant. On shelves around his laboratory a veritable menagerie of crystalline animals stare silently as he works. In fact, he has a regular zoo sitting on his desk.

Szalkowski says he makes animals whenever

he gets tense from sensitive work that hurts his eyes. He claims creating animals, "keeps him from beating his head."

To create a glass animal, Szalkowski begins with expensive colored glass tubing. He heats the glass to a high temperature and begins to mold and blow the desired shape. This shape is created entirely by his own skill and is done without written guides. While the glass is hot, he blows into the tubing, enlarging specific areas and doing other areas to create the animal. This action is all done simultaneously because the glass must be formed quickly while it is still flexible.

### Different colors

At this time the glass sculptor can add different colors by melting other glass tubes. The animal created by the sculptor immediately hardens and is ready for display.

Scientific projects, though, are still Szalkowski's primary line of work. "Without high quality glass apparatuses, much research in chemistry and other areas would be impossible," Jensen says. "Szalkowski's work makes much of this possible at BYU."

# News Spotlight

By THE ASSOCIATED PRESS

## Khadfy denies hit-squad plot

NEW YORK — Libyan leader Col. Muammar Khadfy denied Sunday that he has sent "hit squads" to assassinate President Reagan and challenged the United States to prove that such a plot existed.

"We are sure we haven't sent any people to kill Reagan or any other people in the world, and we want to see these big lies," he said.

"We have no patience to hear this again, and if they have evidence, we are ready to see this evidence."

## Walesa seeks aid from Church

WARSAW, Poland — Solidarity chief Lech Walesa sought Archbishop Jozef Glemp's help on the Polish crisis Saturday as union and government experts discussed the country's staggering economy on national television.

A Warsaw newspaper, meanwhile, said for the union to carry out a threatened general strike now would be the form of "suicide."

Walesa and the prime talked for 90 minutes in Glemp's residence.

There was no communique, but Walesa was believed certain to have discussed with him Solidarity's general strike threat, and tried to get the Roman Catholic primate's help in calming unionists' anger over a raid on police and military commandos that broke up a protest by fire-fighter's cards.

## Pearl Harbor remembered

WASHINGTON — Had he followed his typewriter habit, Franklin D. Roosevelt would have said, "Yesterday, December 7, 1941—a date which will live in world history." But the sneak attack on Pearl Harbor demanded more. Bearing down on the pencil, Roosevelt substituted "infamy."

It became forevermore, "a date which will live in infamy," and a speech to remember Pearl Harbor by.

## Testing Center outlook

The following is the Testing Center outlook for the week beginning Dec. 7.

	a.m.	p.m.
Monday	light	light
Tuesday	medium	heavy
Wednesday	medium	heavy
Thursday	heavy	very heavy
Friday	heavy	heavy
Saturday	heavy	heavy

Hours for finals are as follows: Monday, Dec. 7, 8 a.m. to 7:45 p.m., Tuesday through Friday, Dec. 8 through 11 — 7 a.m. to 5:45 p.m. and Saturday, Dec. 12 — 8 a.m. to 4:45 p.m. Come early in the day to avoid long lines.

## Weather

Utah Valley forecast: Partly cloudy and mild through Tuesday. High 50s, lows near 30.

For the 24-hour period ending 5 p.m. Sunday:

High temperature: 60

Low temperature: 29

One year ago: 41-49

Prevailing wind direction: south

Peak wind speed: 6 mph, 11:05 a.m. Sunday

High humidity: 59 percent

Low humidity: 25 percent

Precipitation: none

Month to date: 0.68 inches

Since Oct. 1, 1981: 5.97 inches

## Coal

Continued from page 1

"One idea is to use fusion power, but we're not making nearly as much progress as we'd like in this area. It will probably be 50 years or more before we can convert it into a power source unless we see some major breakthroughs," he said.

King said even though America has the technology and understands how to use nuclear power safely, there is an enormous problem with public sentiment and inertia that prevents us from using nuclear power.

"If the Arabs shut off our oil supply we'd be in serious trouble," he said. "We could begin to build plants but that would take five to 10 years to do. The problem is what do we use to heat our homes and power our vehicles with in the meantime?"

King said the only thing that will help us in the future is to use our own natural resources and technology to build facilities for nuclear power.

"The reason we haven't had to do this is because we haven't been pressured enough yet," he said.

## Clarinet recital tonight in HFAC

A clarinet recital will be today at 6 p.m. in the Madson Recital Hall.

The recital will feature soloist Don Christensen performing in his senior recital.

Christensen said the musical pieces will include compositions of Stravinsky, Debussy, Beethoven, Mendelssohn and an unpublished piece by Bohica.

He said that unpublished compositions will be performed as well, he said.

## The Daily Universe

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Unlike FDR's other speeches, this one — asking Congress for a declaration of war — was all his own. His speechwriters were out of town when the Japanese attacked.

## Tax break program working

WASHINGTON — Despite criticism that corporations are making "an outrageous raid on the Treasury," administration officials say they are pleased with a new program that encourages unprofitable businesses to sell their federal tax breaks to other companies.

"The program is working just like we planned it," said Greg Ballentine, deputy assistant secretary of the treasury for tax analysis. "We've looked at some of the deals and they are very similar to what we had expected."

By anybody's standard, those deals involve high finance — about \$27 billion in lost tax revenues from 1982 through 1986, the Treasury Department estimates. The figure looms large at a time when the government is reducing planned spending for child nutrition, food stamps and other social programs.

## Dutch discuss disarmament

THE HAGUE, Netherlands — The greatest success of the peace movement in Holland has been to make nuclear disarmament and national security a mainstay of dinner-table conversation, says the director of the Inter-Oceanic Peace Council.

"You've heard it everywhere, in the buses and trams and in restaurants," said director Mient Jan Faber in an interview. "There is constant discussion about how to achieve peace and security."

"What has happened in Holland is that peace has become a Mom-and-Pop issue, taught in the schools."

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and reaching across religious and professional lines," adds Dr. Judy Lipton of Physicians for Social Responsibility.

## ACLU attacks 'spying' order

WASHINGTON — Civil libertarians are attacking the CIA's new authority to collect foreign intelligence from Americans covertly, but most Senate Intelligence Committee members say the watered-down order has adequate safeguards against abuse.

The American Civil Liberties Union complained Friday that the order signed by President Reagan "expands the authority of the CIA and other intelligence agencies to collect, file and disseminate private information concerning law-abiding Americans in the United States and abroad."

However, both Democrats and Republicans on the committee praised Reagan for backing away from more expansive CIA domestic spying proposals that had criticized in earlier drafts of the order.

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# cancer center tests protein

By JULIE POTTER  
Staff Writer

A cure for cancer is still one of the baffling problems scientists are working on. According to Dr. John Mangum, assistant director of the BYU Cancer Research Center, "Nevertheless, the Cancer Research Center is working on some encouraging developments for the treatment of cancer."

Based on estimates of the National Institute's Surveillance Epidemiology and End Results Program (1973 to 1977), 896,000 people in the United States will be diagnosed with cancer in 1981. Of those, 420,000 die unless a cure is found, the study said in "1981 Cancer Facts and Figures."

Mangum said a number of encouraging developments have occurred in the last year. "But we still have a long way to go," he said.

Interferon is one of the newest breakthroughs in cancer research. Interferon, a complex protein produced by body cells to fight the cell from an invading virus, is being studied by the Cancer Research Center. Interferon stimulates the body's own mechanism against viral tumors, and there is evidence the body has anti-tumor properties, he said.

Mangum said he has been exploring the mechanism of interferon, and there is evidence the body has anti-tumor properties, he said.

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mechanism without the aid of interferon.

"There are some encouraging results, although they are not as dramatic as originally anticipated or hoped," Mangum said.

Robins has also developed two anti-tumor drugs which will probably be clinically evaluated and tested on patients with various types of cancer.

A person could develop a drug to cure all cancer tumors, but it would have to be tested and evaluated for three to five years, Mangum said.

Testing in stages  
The first stage of testing is to test the drugs against cells derived from human cancer, he said. When effectiveness has been established on these cells the drug moves on to be tested in laboratory animals with different tumors.

After another evaluation of effectiveness, the drug is tested for toxicity, Mangum said.

"It doesn't do any good to kill the cell if you kill the patient," he said. After these tests it goes through what is called phase one and phase two testing, he said.

In the first phase the drug will be tested on a limited number of patients. If the results are desirable, phase two will involve testing the drug on a greater number of patients.

In one year there are about six to 12 anti-tumor compounds being tested, Mangum said. "What that really means is most have fumbled out for one reason or another," he said.

No one has been able to synthesize the "magic bullet" that will kill the bad cells without destroying the good cells also, Mangum said.

"There are numerous individuals making an intense effort to design and



Mark Smith, a graduate student in biochemistry from Durango, Colo., and Dr. John Mangum, assistant director of the BYU Cancer Research Center, work with equipment used in cancer research. The center is conducting tests on interferon and two anti-tumor drugs. Mangum said there has been some encouraging developments since the center opened three years ago.

synthesize better cancer drugs," he said. "There are other avenues being explored."

Another area of cancer research is with a drug called methotrexate, Mangum said.

Methotrexate is made from the vitamin folic acid, he said. It is chemically changed from its vitamin form to an analog, a chemical compound with the same basic structure as its parent.

See CANCER page 6

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## Positive thinking winning key, claims self-improvement book

By KARLA ZACHIE  
Staff Writer

In "The Sky's The Limit," third in a four-part program for "total human development," a psychology book designed with the layman in mind, says a person can be a winner 100 percent of the time.

"The Sky's The Limit," third in a four-part program for "total human development," a psychology book designed with the layman in mind, says a person can be a winner 100 percent of the time.

His first, "Your Erroneous Zones," pre-

sents ways of recognizing and then eliminating self-defeating behaviors.

His second effort, "Halling Your Own Strings," is a basic course in assertiveness training, presenting the idea of inside and outside manipulators.

Attitude  
In the introduction of the third book Dyer said his fourth book will apply the previous theories to the raising of children.

The basic message of "The Sky's The Limit" is

that attitude precludes and determines behavior. To be a winner, one must think like a winner.

Taking his theme from Dr. Abraham Maslow's idea of humans reaching the highest level, or level of self actualization, Dyer proposes anyone can become a "No-Limit" person, reaching his highest level of human achievement and fulfillment.

Behavior  
Dyer quotes such sayers as Plato, Henry David Thoreau, c.c. Cummings, Thomas Edison, Robert Frost, William Wordsworth, Alexander the Great and uses biblical references to illustrate his ideas.

Describing the behavior process from neurotic to "no limits," as first thinking like a winner, then feeling like a winner and finally behaving like a winner, Dyer fills 364 pages with

entertaining, uplifting pearls of positive thinking.

This book should not be read while in the depths of despair, it's almost annoyingly encouraging.

Writing from the point of view of a counselor, Dyer translates the sticky sentiment found in most self-improvement books, Dyer uses personal experiences and logical analysis to describe his points.

The chapters on the characteristics of authentic thinking and how to transcend such attitudes may strike an uncomfortably familiar chord, while the chapter titled, "How To Be A Good Animal," brings to mind Words of Wisdom scripture references.

With a continuum of behavior attitudes ranging from neurotic to inertia, striving, coping and mastery, Dyer de-

scribes with eerie accuracy the reasons someone would have in given situation just by knowing his attitudes.

Without being smug in any situation, Dyer presents a believable case for the "now a thought, reap an action," idea.

The family theme of "becoming as a child" is found in chapter five, as well as a vaguely defined theory of eternal progression in the later chapters dealing with "Respect Your Higher Needs," and "Cultivating a Sense of Purpose and Meaning."

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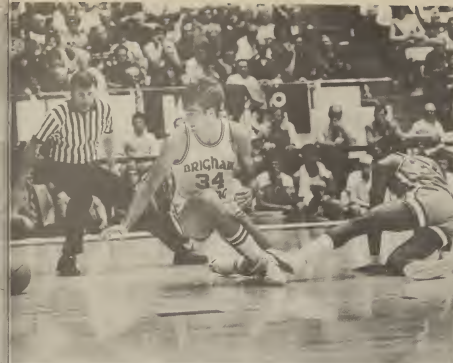
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## Boil home debut

# Beavers maul

By JAY EVENSEN  
Assistant Sports Editor

er playing three tough games on foreign  
t, the last thing the BYU basketball team  
ed Friday night was to be mauled in front of  
ends.

what head coach Frank Arnold called the  
performance he had ever seen at BYU, the  
ranked Cougars were defeated by Oregon  
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Allen wins,  
Jim gets 3rd  
in Heisman

New York (AP) — Marcus Allen, winner of the 1981 Heisman Trophy as the outstanding college football player in the nation, thought about the amount of work he had invested in winning one of the most prestigious awards in sports.

"It is indeed worth it," said Allen, the University of Southern California tailback. "I love the game. That makes it easy. This is a very happy day that I'll never forget."

Allen beat running back Herschel Walker of Georgia for the award, totaling 441 first-place votes and 1,797 points in nationwide balloting by a panel of 1,650 sports writers and broadcasters. He received 204 seconds and 66 thirds.

Walker, third a year ago when South Carolina's George Rogers won the Heisman, finished second this time with 192 first-place votes, 278 seconds and 187 thirds for 1,199 total points.

Quarterback Jim McMahon of BYU was third with 51 firsts, 131 seconds, 171 thirds and 706 total points.

Completing the top 10 were Dan Marino, Pittsburgh, 156; Art Schlichter, Ohio State, 146; Darin Nelson, Stanford, 85; Anthony Carter, Michigan, 42; Kenneth Sims, Texas, 34; Reggie Collier, Southern Mississippi, 30; and Rich Diana, Yale, 23. Each of the 10 received at least two first-place votes.

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**Season Lockers:** Season-long locker rentals available for \$60. Hurry—supply is limited! Season Tickets are the ideal Christmas presents. Gift certificates are available.

**SEASON TICKET ORDER FORM**  
CHECK the plan and circle the number of days you are ordering

Individual Plan:	Family Plan:
15 days... \$150	15 days... \$150
20 days... \$180	20 days... \$180
25 days... \$225	25 days... \$225
30 days... \$270	30 days... \$270
35 days... \$315	35 days... \$315
40 days... \$360	40 days... \$360
45 days... \$405	45 days... \$405
50 days... \$450	50 days... \$450
55 days... \$495	55 days... \$495
60 days... \$540	60 days... \$540
65 days... \$585	65 days... \$585
70 days... \$630	70 days... \$630
75 days... \$675	75 days... \$675
80 days... \$720	80 days... \$720
85 days... \$765	85 days... \$765
90 days... \$810	90 days... \$810
95 days... \$855	95 days... \$855
100 days... \$900	100 days... \$900

**Full Season:** \$900

**Family Plan:** (families are parents with children under 21 years old)  
2 OR 3 MEMBERS  
10 days... \$270  
20 days... \$540  
30 days... \$810  
40 days... \$1080  
50 days... \$1350  
60 days... \$1620  
70 days... \$1890  
80 days... \$2160  
90 days... \$2430  
100 days... \$2700

**Season Lockers:** 4 MEMBERS OR MORE  
40 days... \$360  
50 days... \$450  
60 days... \$540  
70 days... \$630  
80 days... \$720  
90 days... \$810  
100 days... \$900

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# Cougar Band members ready for Holiday Bowl



Troy Garner, a freshman in computer science from Morgan Hill, Calif., plays his mellophone, an instrument similar to a trumpet.

Troy is one of 250 Cougar Band members. 130 members of the band are freshmen.

Universe photos by George Fry

By CHERYL LOITZ

Guest Writer

As the time ran out at the BYU-Utah game, Troy Garner, a freshman from Morgan Hill, Calif., majoring in computer science, and 250 other band members had their dream come true when they realized that they were going to the 1981 Holiday Bowl in San Diego.

## Main reasons

"One of the main reasons I joined band was to go to the Holiday Bowl, meet girls and make friends," Garner said.

## Wasn't easy

Getting to go wasn't easy — actually preparations for the Holiday Bowl began a week before school started in September, when the band went through Sweet Week, which involves 10 hours of practice a day. Since then, the band has been practicing two hours a day, three to four days a week.

Two weeks per show

"It takes approx-

imately two weeks to learn a 7½-minute show," Garner said. "Practices are okay, but it's the pits when the weather is bad." The band marches in rain, snow or 90-degree heat.

As soon as the Holiday Bowl board the bases 16th of December travel all night. See BAND page 7.



Fellow band members Tammy Gerber and Lisa Edgar joke around with Troy at practice. The band members practice in the parking lot west of Cougar Stadium. They practice 2 hours a day, three to four days a week, to prepare for the shows.

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## Cancer

Continued from page 3

often lacking one element. This analog acts as a drug to intercept enzymes that start chemical reactions.

Once the enzymes are intercepted, chemical reactions that cause infections are blocked.

If the cancer is caused by viral infections it can consequently be prevented.

Mangum has studied several folk drugs to determine if they have chemical and anti-tumor properties which, unlike methotrexate, allows them to permanently bond with enzymes.

One of the agents, 17B, has the capability of permanently attaching itself to enzyme targets, Mangum said.

Other areas which are researched at the Cancer Research Center are: virology — analyzing the interaction between tumor viruses and their host cells; immunology — ways to detect, prevent and treat cancers with radioactive antibodies; genetics — differences between normal cells and cancer cells; and carcinogenesis — the relationship between certain chemicals in the environment and cancer incidence among people exposed to those elements.

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9320 So. 700 East







...y plays his mellophone, an instrument similar to a trumpet, in the halftime show at the BYU-Utah game. Usually, a halftime show lasts 15 minutes, but takes hundreds of hours to prepare for. The band

members will usually perform three numbers while marching in different formations.

## Band

Continued from page 6

bus. Thursday, we will arrive in Anaheim, Calif., and perform a concert at Disneyland.

On to San Diego  
From there we will travel on to San Diego for the night, get up early on Friday and practice until the Holiday Bowl begins. We will do the pregame show and also a 5-minute halftime show."

Besides the scheduled performance at the 1981 Holiday Bowl, the Cougar Band this year has marched in the Homecoming Parade, the Spirit Parade before each home game.

Other performances  
The band has also performed at Sea World on the San Diego football

Whatever hits the fan will not be evenly distributed.



Jim Beas is only 16. He's the best.

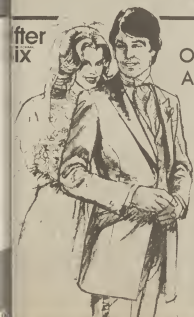
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## Teachers may strike over cutbacks

PROVO (AP) — Provo teachers are upset over cutbacks in money for education, and some are considering a strike, says Drew F. Bolander, Provo Education Association president.



## THE "KING" RETURNS

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## HOME AGAIN



by Kristen Randle

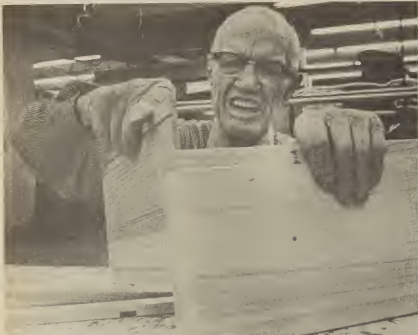


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1980-1981-1982-1983-1984-1985-1986-1987-1988-1989-1990-1991-1992-1993-1994-1995-1996-1997-1998-1999-2000-2001-2002-2003-2004-2005-2006-2007-2008-2009-2010-2011-2012-2013-2014-2015-2016-2017-2018-2019-2020-2021-2022-2023-2024-2025-2026-2027-2028-2029-2030-2031-2032-2033-2034-2035-2036-2037-2038-2039-2040-2041-2042-2043-2044-2045-2046-2047-2048-2049-2050-2051-2052-2053-2054-2055-2056-2057-2058-2059-2060-2061-2062-2063-2064-2065-2066-2067-2068-2069-2070-2071-2072-2073-2074-2075-2076-2077-2078-2079-2080-2081-2082-2083-2084-2085-2086-2087-2088-2089-2090-2091-2092-2093-2094-2095-2096-2097-2098-2099-2100-2101-2102-2103-2104-2105-2106-2107-2108-2109-2110-2111-2112-2113-2114-2115-2116-2117-2118-2119-2120-2121-2122-2123-2124-2125-2126-2127-2128-2129-2130-2131-2132-2133-2134-2135-2136-2137-2138-2139-2140-2141-2142-2143-2144-2145-2146-2147-2148-2149-2150-2151-2152-2153-2154-2155-2156-2157-2158-2159-2160-2161-2162-2163-2164-2165-2166-2167-2168-2169-2170-2171-2172-2173-2174-2175-2176-2177-2178-2179-2180-2181-2182-2183-2184-2185-2186-2187-2188-2189-2190-2191-2192-2193-2194-2195-2196-2197-2198-2199-2200-2201-2202-2203-2204-2205-2206-2207-2208-2209-2210-2211-2212-2213-2214-2215-2216-2217-2218-2219-2220-2221-2222-2223-2224-2225-2226-2227-2228-2229-2230-2231-2232-2233-2234-2235-2236-2237-2238-2239-2240-2241-2242-2243-2244-2245-2246-2247-2248-2249-2250-2251-2252-2253-2254-2255-2256-2257-2258-2259-2260-2261-2262-2263-2264-2265-2266-2267-2268-2269-2270-2271-2272-2273-2274-2275-2276-2277-2278-2279-2280-2281-2282-2283-2284-2285-2286-2287-2288-2289-2290-2291-2292-2293-2294-2295-2296-2297-2298-2299-2300-2301-2302-2303-2304-2305-2306-2307-2308-2309-2310-2311-2312-2313-2314-2315-2316-2317-2318-2319-2320-2321-2322-2323-2324-2325-2326-2327-2328-2329-2330-2331-2332-2333-2334-2335-2336-2337-2338-2339-2340-2341-2342-2343-2344-2345-2346-2347-2348-2349-2350-2351-2352-2353-2354-2355-2356-2357-2358-2359-2360-2361-2362-2363-2364-2365-2366-2367-2368-2369-2370-2371-2372-2373-2374-2375-2376-2377-2378-2379-2380-2381-2382-2383-2384-2385-2386-2387-2388-2389-2390-2391-2392-2393-2394-2395-2396-2397-2398-2399-2400-2401-2402-2403-2404-2405-2406-2407-2408-2409-2410-2411-2412-2413-2414-2415-2416-2417-2418-2419-2420-2421-2422-2423-2424-2425-2426-2427-2428-2429-2430-2431-2432-2433-2434-2435-2436-2437-2438-2439-2440-2441-2442-2443-2444-2445-2446-2447-2448-2449-2450-2451-2452-2453-2454-2455-2456-2457-2458-2459-2460-2461-2462-2463-2464-2465-2466-2467-2468-2469-2470-2471-2472-2473-2474-2475-2476-2477-2478-2479-2480-2481-2482-2483-2484-2485-2486-2487-2488-2489-2490-2491-2492-2493-2494-2495-2496-2497-2498-2499-2500-2501-2502-2503-2504-2505-2506-2507-2508-2509-2510-2511-2512-2513-2514-2515-2516-2517-2518-2519-2520-2521-2522-2523-2524-2525-2526-2527-2528-2529-2530-2531-2532-2533-2534-2535-2536-2537-2538-2539-2540-2541-2542-2543-2544-2545-2546-2547-2548-2549-2550-2551-2552-2553-2554-2555-2556-2557-2558-2559-2560-2561-2562-2563-2564-2565-2566-2567-2568-2569-2570-2571-2572-2573-2574-2575-2576-2577-2578-2579-2580-2581-2582-2583-2584-2585-2586-2587-2588-2589-2590-2591-2592-2593-2594-2595-2596-2597-2598-2599-2600-2601-2602-2603-2604-2605-2606-2607-2608-2609-2610-2611-2612-2613-2614-2615-2616-2617-2618-2619-2620-2621-2622-2623-2624-2625-2626-2627-2628-2629-2630-2631-2632-2633-2634-2635-2636-2637-2638-2639-2640-2641-2642-2643-2644-2645-2646-2647-2648-2649-2650-2651-2652-2653-2654-2655-2656-2657-2658-2659-2660-2661-2662-2663-2664-2665-2666-2667-2668-2669-2670-2671-2672-2673-2674-2675-2676-2677-2678-2679-2680-2681-2682-2683-2684-2685-2686-2687-2688-2689-2690-2691-2692-2693-2694-2695-2696-2697-2698-2699-2700-2701-2702-2703-2704-2705-2706-2707-2708-2709-2710-2711-2712-2713-2714-2715-2716-2717-2718-2719-2720-2721-2722-2723-2724-2725-2726-2727-2728-2729-2730-2731-2732-2733-2734-2735-2736-2737-2738-2739-2740-2741-2742-2743-2744-2745-2746-2747-2748-2749-2750-2751-2752-2753-2754-2755-2756-2757-2758-2759-2760-2761-2762-2763-2764-2765-2766-2767-2768-2769-2770-2771-2772-2773-2774-2775-2776-2777-2778-2779-2780-2781-2782-2783-2784-2785-2786-2787-2788-2789-2790-2791-2792-2793-2794-2795-2796-2797-2798-2799-2800-2801-2802-2803-2804-2805-2806-2807-2808-2809-2810-2811-2812-2813-2814-2815-2816-2817-2818-2819-2820-2821-2822-2823-2824-2825-2826-2827-2828-2829-2830-2831-2832-2833-2834-2835-2836-2837-2838-2839-2840-2841-2842-2843-2844-2845-2846-2847-2848-2849-2850-2851-2852-2853-2854-2855-2856-2857-2858-2859-2860-2861-2862-2863-2864-2865-2866-2867-2868-2869-2870-2871-2872-2873-2874-2875-2876-2877-2878-2879-2880-2881-2882-2883-2884-2885-2886-2887-2888-2889-2890-2891-2892-2893-2894-2895-2896-2897-2898-2899-2900-2901-2902-2903-2904-2905-2906-2907-2908-2909-2910-2911-2912-2913-2914-2915-2916-2917-2918-2919-2920-2921-2922-2923-2924-2925-2926-2927-2928-2929-2930-2931-2932-2933-2934-2935-2936-2937-2938-2939-2940-2941-2942-2943-2944-2945-2946-2947-2948-2949-2950-2951-2952-2953-2954-2955-2956-2957-2958-2959-2960-2961-2962-2963-2964-2965-2966-2967-2968-2969-2970-2971-2972-2973-2974-2975-2976-2977-2978-2979-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Ed Christensen, a 94-year-old retired box assembler, puts a wooden box together with a staple gun. Christensen said he loves his job at Desert Industries. D.I. provides the elderly and handicapped with work, security and satisfaction.

Universe photo by Gary Bryant

## D.I. gives handicapped work, security, purpose

By WENDY SMITH  
Staff Writer

Desert Industries is more than just a thrift store where items are remade and sold at an amazing price. It is also a program that provides work, security and satisfaction to the elderly and handicapped.

For example, there's Ed Christensen, a 94-year-old box assembler who said he loves his job and loves the ladies. Since he retired, he has worked at D.I. putting wooden boxes together with a staple gun. He spends his spare time talking to onlookers about "all my girlfriends."

### Accept responsibility

Then there is Lynette Robertson, a mentally handicapped woman who has worked at D.I. for 16 years. In spite of her disability, she has learned to accept more and more responsibility. She has progressed from a laundry worker to a supervisor over the diversified crafts section, where the most severely handicapped work.

Many of the D.I. workers get up at 6 a.m. and walk two or more miles to work each day, said Jim Fox, manager of the Provo D.I. "They are so enthusiastic that we actually have to 'make' some of them take their vacations."

"Most of these people like their jobs and are very happy," said Glenna Taylor, rehabilitation counselor for Provo's D.I. "It gives them a purpose in life; they look forward to coming into work each day."

According to Evan Whipple, coordinator of the LDS Church Welfare Services, the sales floor represents only 15 percent of what D.I. is all about. The main function of Desert Industries is to recon-

struct items for the needy while providing a job for the handicapped, elderly and those who are out of work or at a disadvantage.

Many of the workers have potential to go out into the business world and work. They are evaluated by rehabilitation counselors at intervals to determine when they will be ready to work in the outside world.

Workers may then be placed in jobs such as sales, custodial work, or working at nursing homes. They are provided with on-the-job training by a counselor, so they aren't just "cut-out," said Taylor. "We follow up to help this person become a success in the business world."

"Most of the handicapped people who come in will stay for three to six months," said Taylor. During this time, the handicapped go through an evaluation process to determine what work skills they possess or can acquire.

### Jobs equivalent

Workers who must stay at D.I. are provided with jobs that are equivalent to their abilities and past job experience.

Charlie Feischer, for example, takes copper wire out of motors. To do this, Charlie must first crack the motor open, then tear the wire out. What is left is scrap metal. This requires strength and patience on his part. But Charlie seems to be the man to do the job.

Whipple said donations are the life-blood of the whole program and without this they couldn't function. "Garage sales, white elephant sales and ward bazaars compete with the handicapped workers at D.I."

# Scholarships

## Are you interested in a Scholarship for next Fall?

### Scholarships

Scholarships are an investment made by the Church and University in your education when you do well in the academic programs of BYU and meet the other scholarship requirements.

BYU offers two types of scholarships to continuing undergraduate students. First, there are University and private scholarships based strictly on grade point average. These awards range anywhere from half tuition up to \$16,000 per academic year. To be competitive for these scholarships you will need a cumulative GPA of about 3.7. If you have acute financial need, a grant may be added to this scholarship.

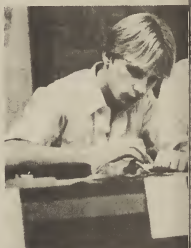
Another type of scholarship offered at BYU comes from money given to the University by individuals or companies. Sometimes these donors establish certain criteria students must meet to receive the award. Some of these specific scholarship requirements are —  
College Major — There are over 150 scholarships restricted to students in certain majors. For example, awards are given to students in education, art, dance, drama, music, nursing, English, German, speech, communications, all fields of engineering, pre-med, the agricultural and biological sciences, math, chemistry, physics, family living, and many more.

Financial Need — Although GPA is evaluated in awarding all scholarships, a student's financial need is a major consideration in making some awards. If you would like to be considered for one of the need-based scholarships, you must fill out the Financial Aid Form (FAF).

Year in School — Some awards are restricted to freshmen. Others require that you be a sophomore or junior at the time the awards are made. All awards made by the Undergraduate Scholarship Committee go to students who have fewer than 120 semester hours of credit. If you are a graduate student, you should inquire at the Graduate School or your major department about graduate awards.

Home State — Limitations have been placed on some scholarships making them available only to students from certain geographical areas. When you apply for a scholarship at BYU, you are automatically considered for this type of award, based on your permanent address.

Other — There are several other scholarships that have had special restrictions place upon them. Two scholarship funds have been established to provide awards for physically handicapped students. Another scholarship goes only to the children of Tabernacle Choir members. There are scholarships for widows and divorcees, American Indian students, and students from the Bay area of California.



## Scholarship Information

For more information you can go to the Financial Aid Office, A-41 ASB, and your college advancement center. People in these offices can give you details about the scholarships available and how to apply.

### To Apply

To apply for a scholarship for the 1982-83 school year go to the Financial Aid Office, A-41 ASB, fill out a one-page application, and turn it in. That's all. The deadline is Feb. 1. No applications will be accepted after that date.

If your GPA is 3.7 or higher, we encourage you to apply. You will receive a letter in April, before the end of the winter semester, telling you whether or not you have qualified. Most scholarships are for one year. Awards are not automatically renewed; therefore, a student who currently holds a one-year award must reapply for a new scholarship.

## Financial Need Consideration

Students who qualify for an academic scholarship may be eligible for an additional grant of \$200 or \$400 based on their financial need. There are also scholarships for which financial need is a major consideration in making the award. To be considered for a grant or need-based scholarship, you must complete the Financial Aid Form (FAF). The FAF is available at the Financial Aid Office, A-41 ASB. After you fill it out, mail it to the College Scholarship Service in Berkeley, California where it will be analyzed and returned to BYU. This process takes about four weeks. This means that you must mail the form by the scholarship deadline of Feb. 1 to assure that your financial needs analysis will be here when awards are being made.

The FAF must be filed each year after January 1. An FAF analyzed prior to Feb. 1, 1981 will not be considered in making scholarship awards for 1982-83. The FAF can also be used to determine your eligibility for the Basic Educational Opportunity Grant (BEOG).

## Spring/Summer Scholarships

Full and half tuition scholarships are offered for spring and summer terms. If you plan to stay for one or for both of these terms and have a GPA of 3.7 or better, apply for a scholarship. The spring term scholarship application deadline is February 1, while the summer term deadline is May 1.

## For More Information Contact the Financial Aids Office, A-41 ASB

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